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(54) Title
BUILDING APPARATUS FOR FORMING OPENINGS IN BLOCK OR BRICK WALLS
(REMOVABLE LINTEL)

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(56) Prior Art Documents
AU 221688 28575/57 E04G 11/56 81.4
AU 162969 24879/54 E04C 3/06 81.4
AU 161186 14954/52 E04G 11/04 81.4

(57) Claim

1. An apparatus enabling formation of windows or doors in block or brick walls comprising:

an elongate support member with an inverted U-shape cross section which, in use, enables blocks or bricks to be laid thereover; and

end supports attached to the elongate support member whereby the support member may be supported in place, in use, spanned across the top of an opening being formed in a wall;

the elongate support member having a top surface over which block or brick laying may progress;

the end supports being opposed plate-like tongues which substantially lie in the same plane as the top surface and slidably extend in the direction of the length of the elongate support member to overlap (in use) the course of bricks or blocks at the top of the window or door at each side thereof to support the elongate member therebetween;

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(10) 608121

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the plate-like tongues being retractable upon actuation of a retraction means engaged against an engagement means provided on each of their lower surfaces.

2. An apparatus as claimed in Claim 1 wherein the depending arms of the inverted U-shaped support member have inwardly projected flanges at their lower extremities, the flanges co-operating with a stiffening means adding rigidity to the support member.

3. An apparatus as claimed in either one of Claims 1 or 2 wherein the opposed tongues are plate like bodies with orthogonal lugs bent downwardly therefrom by which the extended tongues may be withdrawn.

4. An apparatus as claimed in Claim 3 wherein the elongate support member is provided with a stop to limit the travel of the tongue on withdrawal and the lug being engaged with the elongate support member stop at a point to limit its extension.

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608121

APPLICATION FOR A PATENT



We, ANTON PILZ and PAMELA PILZ

both of 17 Camuglia Street, Garbutt, Townsville,
Queensland, 4814, Australia,

hereby apply for the grant of a Patent for the Invention
entitled:

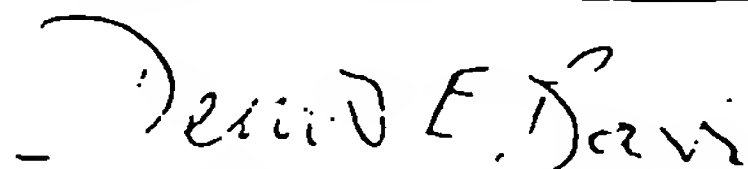
"BUILDING APPARATUS"

which is described in the accompanying Provisional
Specification.

Our address for service is: c/- GRANT ADAMS & COMPANY,
Patent Attorneys, of 333 Adelaide Street, Brisbane,
Queensland, 4000, Australia.

DATED this eleventh day of February 1988

ANTON PILZ and PAMELA PILZ,
by their Patent Attorneys,
GRANT ADAMS & COMPANY,


Dennis E. Barr.

TO:

The Commissioner of Patents,
COMMONWEALTH OF AUSTRALIA.

COMMONWEALTH OF AUSTRALIA

Patents Act 1952

DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT

In support of the Application made by

ANTON PILZ and PAMELA PILZ

for a patent for an invention entitled:

"BUILDING APPARATUS"

WE, ANTON PILZ and PAMELA PILZ

both of 17 Camuglia Street, Garbutt, Townsville,

Queensland, 4814 Australia, do solemnly and sincerely

declare as follows:-

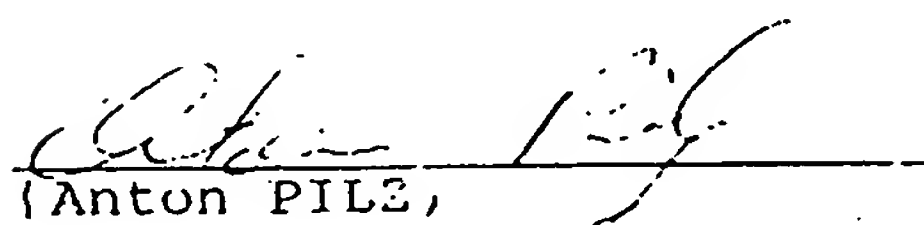
1. We are the applicants.

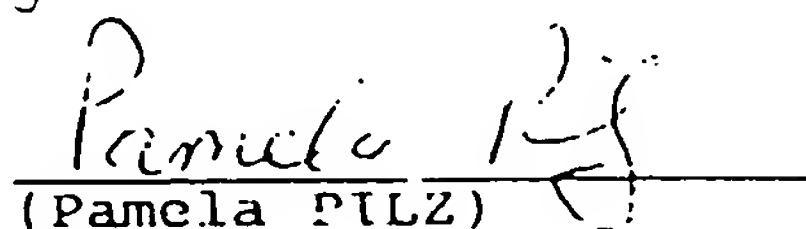
2. I, the said ANTON PILZ am the actual inventor of the invention and the facts upon which the said PAMELA PILZ is entitled to make the application are as follows:-

The said Pamela Pilz is the assignee of a half-share of the said invention from the said inventor.

Declared at Townsville, Queensland, Australia this

28th day of February, 1989.


(Anton PILZ)


(Pamela PILZ)

GRANT ADAMS & COMPANY,
333 Adelaide Street,
BRISBANE. QLD. 4000
AUSTRALIA.

TO:

The Commissioner of Patents,
COMMONWEALTH OF AUSTRALIA.

608121

This document contains the
amendments made under
Section 49 and is correct for
printing.

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Patents Act 1952

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333 Adelaide Street,
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COMPLETE SPECIFICATION FOR THE INVENTION ENTITLED:

"BUILDING APPARATUS"

The following statement is a full description of the
invention including the best method of performing it known
to the applicant.

THIS INVENTION relates to apparatus for use in the construction of buildings.

In the erection of buildings using block or brick techniques, special provisions have to be made to support walls at points over doors and windows where the rows of blocks or bricks would be otherwise unsupported and liable to collapse. Lintels of various kinds have been devised to enable brickwork to span over an opening. Whilst the prior means of enabling construction to proceed are effective, there is scope for further improvement.

It is an object of the present invention to provide apparatus for use in the construction of buildings whereby block or brick walls may be laid over windows and doors, which apparatus is reusable. Other objects, and various advantages of the present invention will hereinafter become apparent.

The invention achieves its objects in provision of an apparatus enabling formation of windows or doors in block or brick walls comprising:

an elongate support member with an inverted U-shape cross section which, in use, enables blocks or bricks to be laid thereover; and

end supports attached to the elongate support member whereby the support member may be supported in place, in use, spanned across the top of an opening being formed in a wall;

the elongate support member having a top surface over which block or brick laying may progress;

the end supports being opposed plate-like tongues which substantially lie in the same plane as the top surface and slidably extend in the direction of the length of the elongate support member to overlap (in use) the course of bricks or blocks at the top of the window or door at each side thereof to support the

elongate member therebetween;

the plate-like tongues being retractable upon actuation of a retraction means engaged against an engagement means provided on each of their lower
5 surfaces.

The invention will now be described with reference to various preferred embodiments which are illustrated in the accompanying drawings wherein:

FIG. 1 illustrates an arch template;

10 FIGS. 2 to 4 are top, bottom and end views respectively of a window head in accordance with the present invention;

FIG. 5 shows the window head of FIGS. 2 to 4 in use,

FIGS. 6 to 8 show modified versions of the embodiment of FIGS. 2 to 4,

5 FIGS. 9 to 11 show various means by which the embodiment of FIGS. 2 to 8 may be stiffened,

FIGS. 12 and 13 show how two of the apparatus of any one of FIGS. 2 to 11 may be utilised together.

The arch template 10 of FIG. 1 has a brick
10 supporting member 11 extended between two ends 12 and 13 and is spanned by an elongate structural member 14 which comprises end arms 15 and 16 which may have braces 17 and 18 respectively interconnecting them to the brick supporting member 11 whose arch may be varied by
15 adjustment of the intermediate member 19 interposed between the end arms 15 and 16 to complete the elongate structural member 14. The intermediate member 19 is variable in length so as to vary the gap between the end arms 15 and 16 and the length of member 13 and the arch
20 of brick supporting member 11. The intermediate member 19 may have a threaded rod 20 held in end arm 16 such that turning nut 21 against an abutment on member 19 pulls the end arms together.

In order to be able to use the above described
25 arch template, the ends 12 and 13 may be provided with inwardly directed feet 22 and 23, which, in use, rest upon a suitable support such as bracket 24 with a shelf 25 thereover upon which foot 23 can rest. A like bracket may be placed at the other end. Bracket 24 is
30 provided with a multiple of holes 26 through which a bolt or bolts may pass to hold the bracket to a brick wall edge at an arched opening. The multiple holes enable the one bracket to be used with a variety of brick types.

35 In use, a wall in which an archway is to be provided is constructed up to the base of the arch with

the requisite break in the wall provided to accommodate the archway.

Brackets such as 24 may be fixed by pins or other suitable connectors to the edge of the brickwork at both sides of the archway with the shelf 25 uppermost and projecting inwards. Such pins or other suitable connectors to be inserted through holes in the bracket 24 into the mortar joint between the courses of brickwork. An arch template may then be stood over the gap upon the brackets when standard archwork may proceed in bricking over the template to create a finished wall. Finally, the template may be removed by removal of the brackets and turning of nut 21 to release the template and leave a clean bricked archway.

The arch template is best simply constructed by welding of stock steel items. The brick support member need only be a relatively rigid length of steel strip-like material capable of holding its arch shape under the weight of bricks thereover whilst mortar sets or bond beams are poured. Additional braces may be added to the pair shown in FIG. 1 between the arch strip and the end arms.

In FIGS. 2 to 4 is shown a window head having an elongate support member 27 with opposed tongues 28 and 29 which are slidably mounted underneath the elongate support member between the member and channel defining hold plates 31 and 32. The tongues may be slid in and out of their channels by action against stop lugs 33 and 34.

For rigidity, the elongate support member 27 may be provided with downwardly depending flanges 30 and 31 so as to assist in supporting the courses of bricks that are laid thereover in use. Additionally, a brace may be extended between the window head and the window sill, or door step below, to add to the weight of bricks that can be supported.

FIG. 5 shows the above window head in use. Window head 27 is extended over a gap to become a window with tongue 29 rested on the top course of wall 34 when the upper courses 35 and 36 may then be laid over the head. When the mortar and bond beams of concrete block constructions are set, the window head may be removed by use of tool 37 which is a lever pivoting on leg 38 so that end 39 may push against stop lug 33 to withdraw tongue 29.

10 In the embodiment of FIGS. 7 and 8, support member 27 is provided with end stops 42 and 43 to retain the tongues and prevent their loss. The end stops restrict movement away from the extended position.

15 In the embodiment of FIGS. 6 to 8, the flexural stiffness of the window head support, the support member, is increased by adding a horizontal plate 41, between the lower lips 48 and 49. The lips are inwardly projected flanges at the ends of the downwardly projected arms of an inverted U-shape sectioned member whose inverted base provides a support for blocks or bricks as described above. The plate 41 may be welded in place to produce a box section. The main member 27 is most readily made from a commercially available 'Lipped C' section.

25 FIGS. 9 to 11 show different ways in which the support member may be stiffened. In FIGS. 9 and 11, rectangular section, V-shaped bars 44 and 45 are welded intermittently to legs 30 and 31 respectively. In FIG. 8 a pair of vertical web members 46 and 47 are welded in place and run substantially the full length of member 27. Any one of these, or a combination thereof, or alternate means may be employed. In practice, convenience in fabrication and cost will be factors in deciding what is appropriate in any particular
35 circumstance.

In application of the above described apparatus enabling the continuation of a block or brick wall over an opening being built into a wall under fabrication, it is desirable to build an upwards camber
5 into member 27 to offset deflection caused by subsequent applied loads. This precamber is of the order of $L/1000$, where L is the opening size, and is readily incorporated during fabrication.

FIGS. 12 and 13 show an additional detail that
10 has been found to increase the utility of the items. A support piece 52 may be used to conveniently join two members together end to end to increase the size of an opening that may be spanned. Item 52 is a connector comprising a bottom plate 50 and side plates 51 and 53.
15 The connection can be made by removing one of the tongue pieces from one adjoining end of one of the two support members that are to be connected. This is readily done by knocking off one end stop 42 and sliding the remaining tongue into the space normally occupied by the
20 other (not shown). The assembly may be enhanced by means of the two cross bolts 56 and 55 and it can be vertically supported to the floor or sill by post 54.

Whilst the above has been described with reference to preferred embodiments, it will be clear
25 that many modifications and variations might be made thereto that are within the scope and spirit of the invention as hereinbefore set forth.

The claims defining the invention are as follows:

1. An apparatus enabling formation of windows or doors in block or brick walls comprising:

an elongate support member with an inverted U-shape cross section which, in use, enables blocks or bricks to be laid thereover; and

end supports attached to the elongate support member whereby the support member may be supported in place, in use, spanned across the top of an opening being formed in a wall;

the elongate support member having a top surface over which block or brick laying may progress;

the end supports being opposed plate-like tongues which substantially lie in the same plane as the top surface and slidably extend in the direction of the length of the elongate support member to overlap (in use) the course of bricks or blocks at the top of the window or door at each side thereof to support the elongate member therebetween;

the plate-like tongues being retractable upon actuation of a retraction means engaged against an engagement means provided on each of their lower surfaces.

2. An apparatus as claimed in Claim 1 wherein the depending arms of the inverted U-shaped support member have inwardly projected flanges at their lower extremities, the flanges co-operating with a stiffening means adding rigidity to the support member.

3. An apparatus as claimed in either one of Claims 1 or 2 wherein the opposed tongues are plate like bodies with orthogonal lugs bent downwardly therefrom by which the extended tongues may be withdrawn.

4. An apparatus as claimed in Claim 3 wherein the elongate support member is provided with a stop to limit



the travel of the tongue on withdrawal and the lug being engaged with the elongate support member stop at a point to limit its extension.

5. An apparatus enabling the formation of window and door openings substantially as hereinbefore described with reference to FIGS. 2 to 11.

DATED this eighteenth day of December 1990.

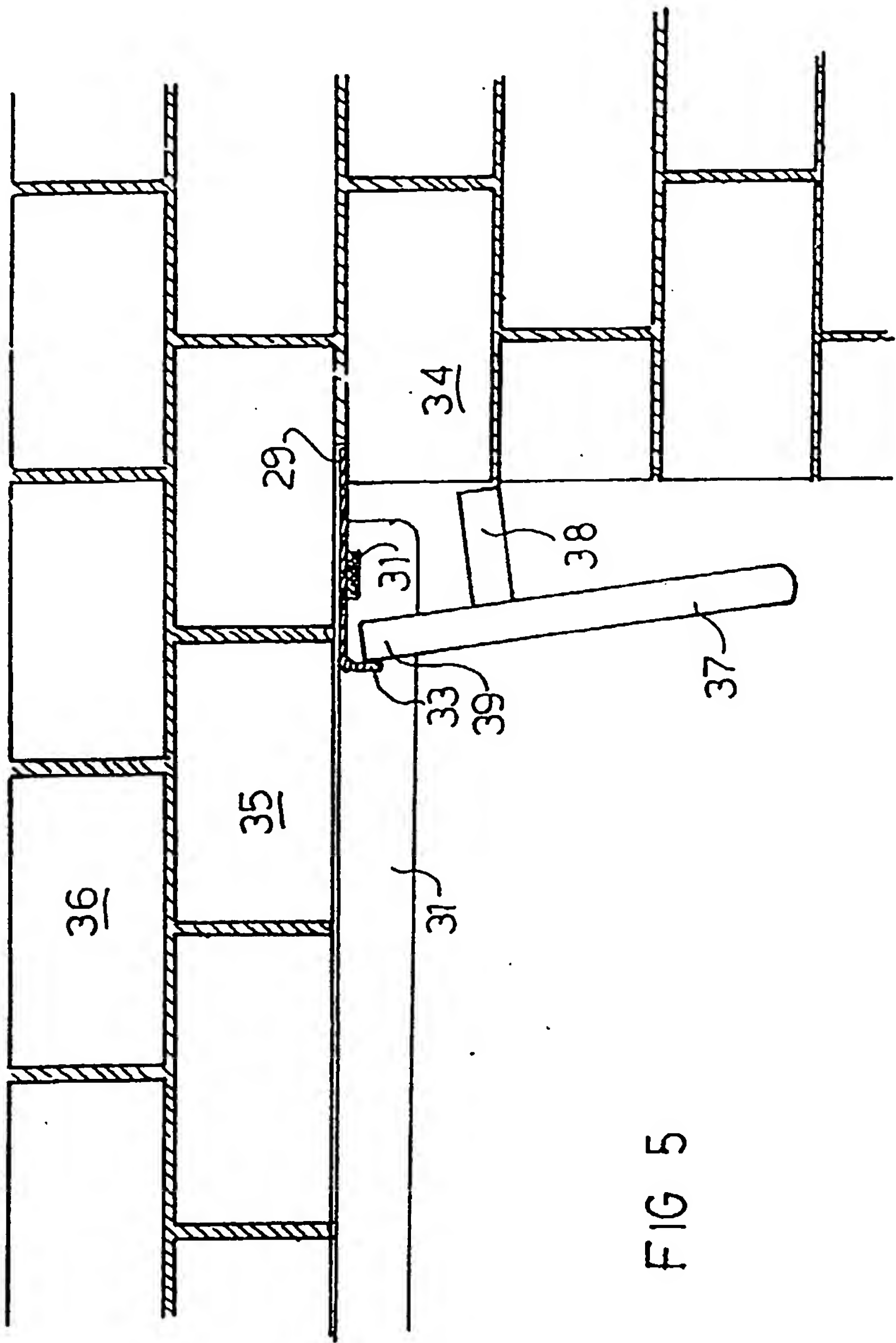
ANTON PILZ and

PAMELA PILZ,

by their Patent Attorneys,

GRANT ADAMS & COMPANY.

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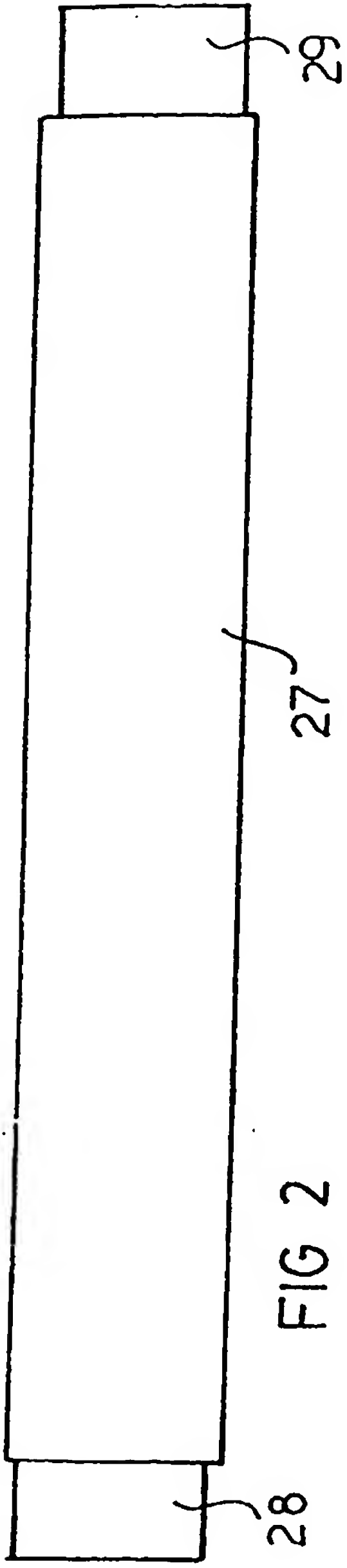


FIG 2

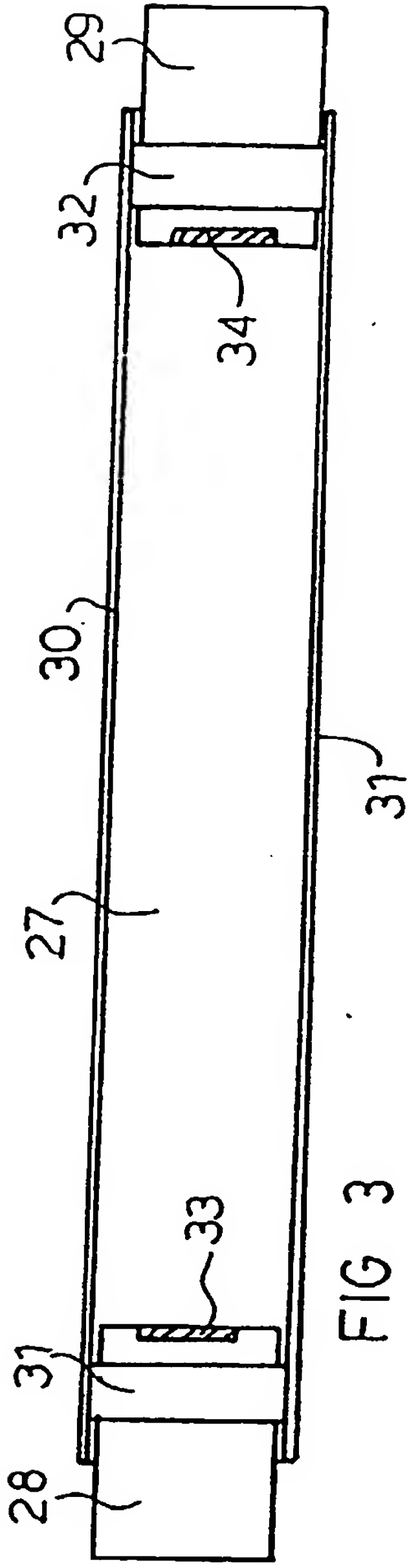


FIG 3

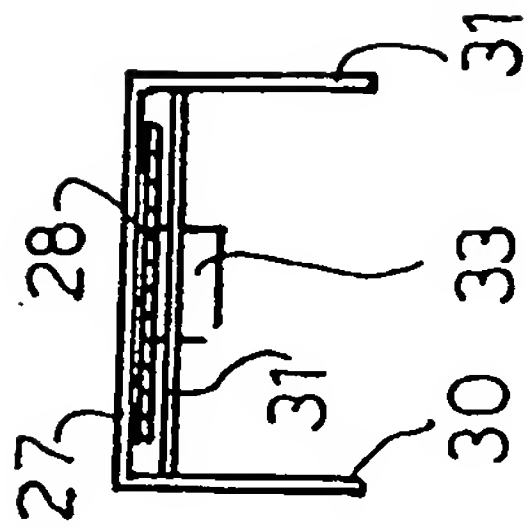


FIG 4

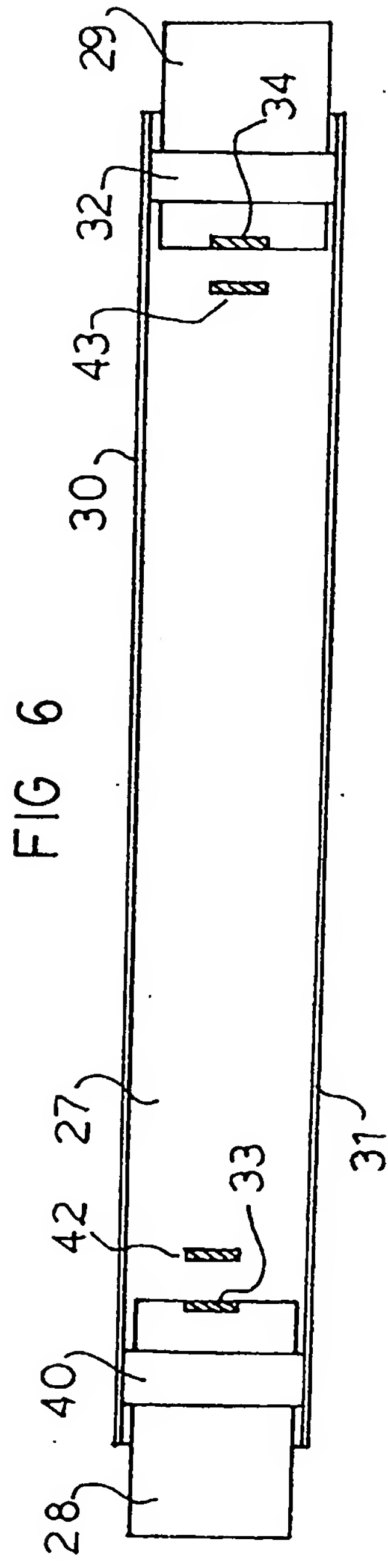


FIG 6

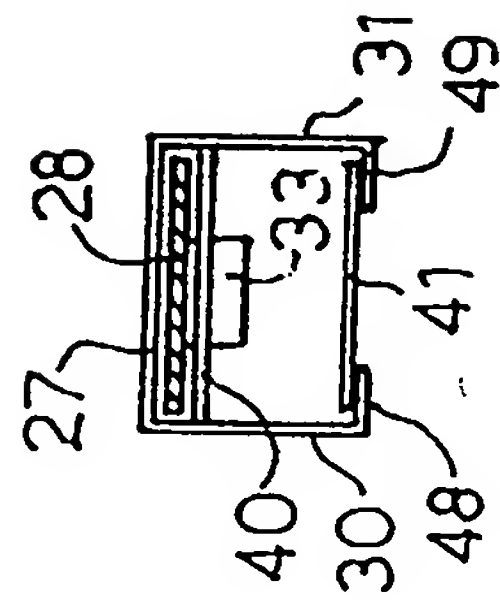


FIG 7

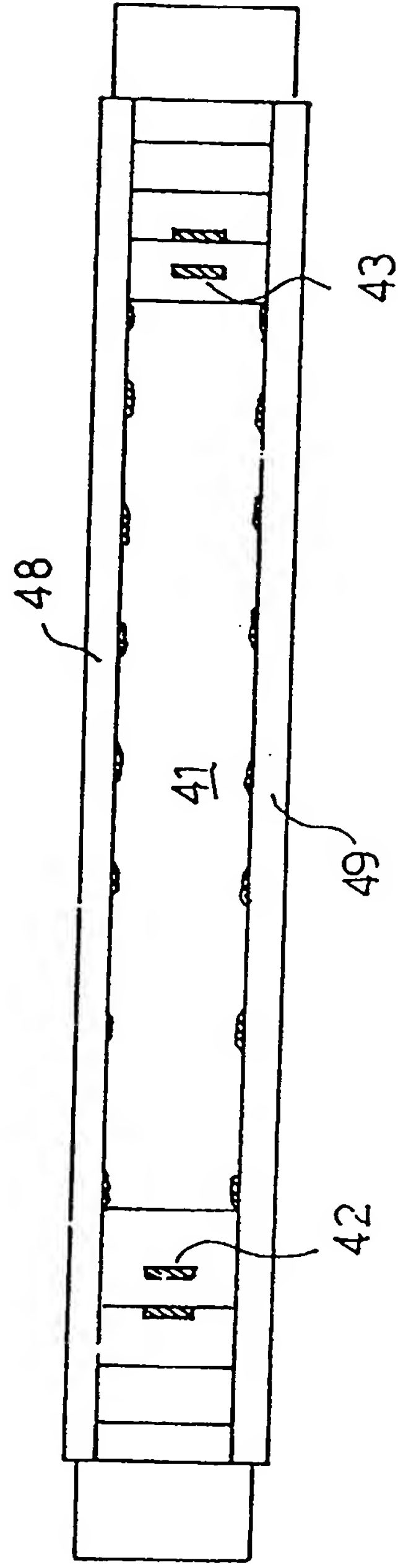


FIG 8

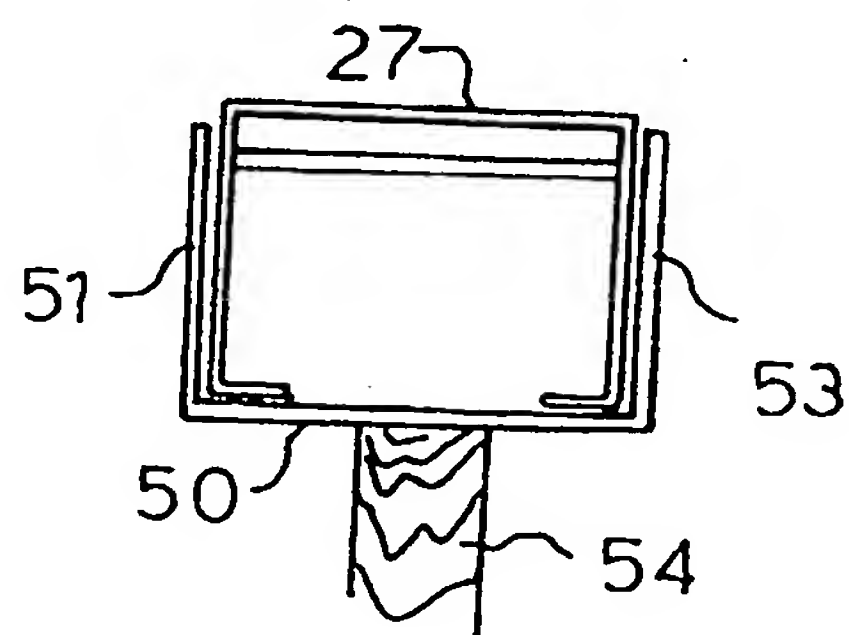
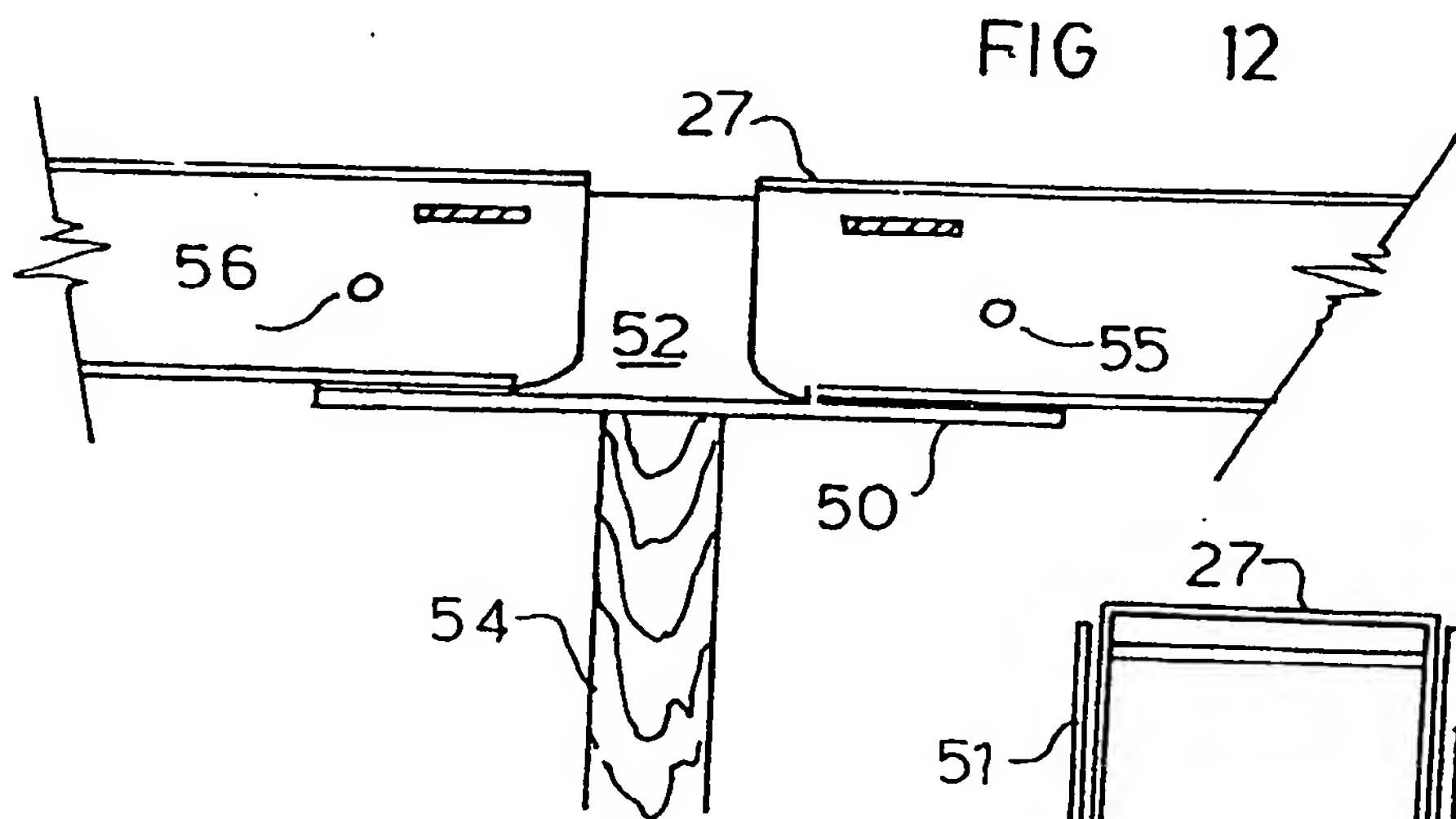
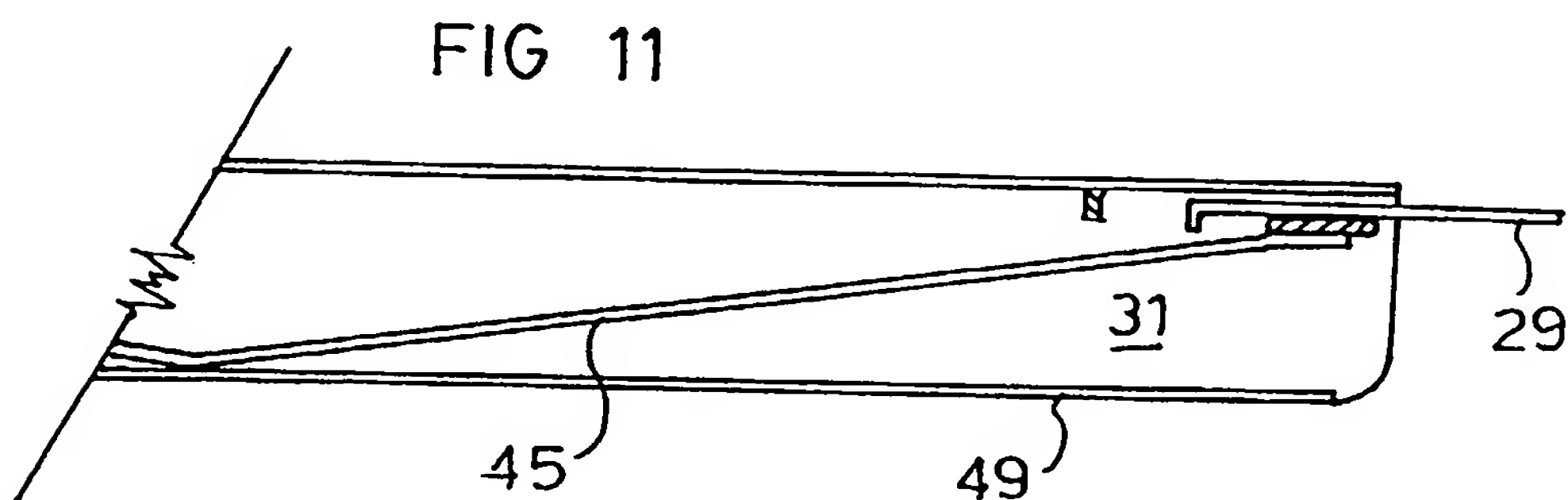
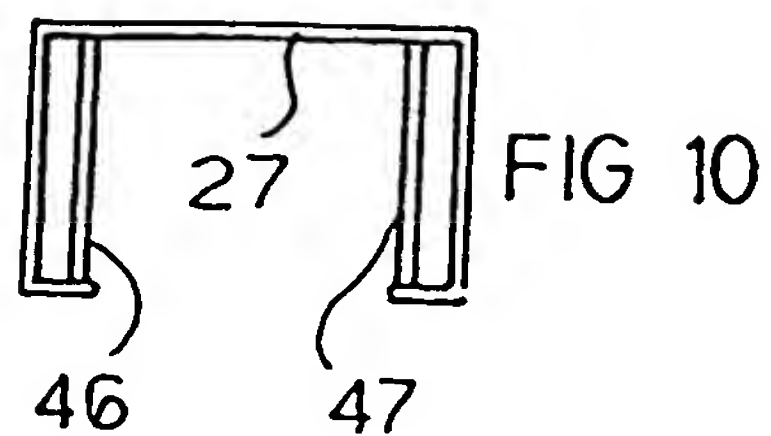
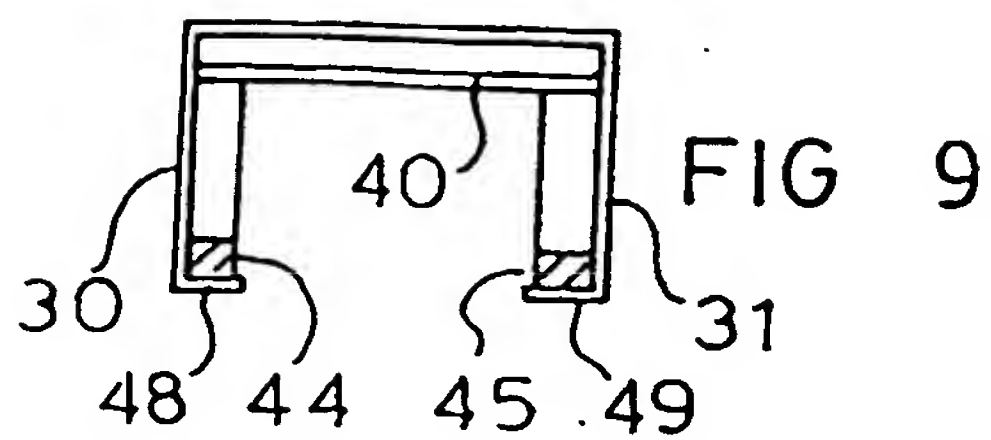


FIG 13

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